

Underwater Electric Kite

Development Stage: Demonstration



Lowering the Twin Turbines into the Water for Testing

Product Description

The basic principle of the UEK® System is a shrouded horizontal axial turbine converter.

To take advantage of the fastest water flow velocity, the device is built with two counter rotating turbines, side by side, to cancel the torque exerted on the housing and therefore permit the unit to be free of civil support work such as a tower, bridges, platform or other permanent structures. (Patent No. 6,139,255 – October 31, 2000 and US 6,168,373 B1 – January 2, 2001)

The “Augmentor ring” feature, an integral part of the housing, permits energy extraction from a larger surface cross section than the device which results in a considerably increased availability of kinetic resource.

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Product Highlights		
Standard Unit Design Capacity	400 kW	Design Working Environment <ul style="list-style-type: none"> ■ Natural waterways ■ Water transmission systems ■ Effluent streams ■ Tidal estuaries ■ Near shore ocean ■ Off-shore ocean <input type="checkbox"/> Deep ocean ■ Other Instream Energy Recovery System
Other sizes currently available	Yes	
Characteristic Dimension	8 ft	
Rotational Axis Orientation	Horizontal, parallel to flow	

Product Description continued

Present designs, prototypes and tooling encompass river, tidal, amphibious, ocean and instream recovery systems. Sizes available are from 3 to 22 feet in diameter, single or twin runners.

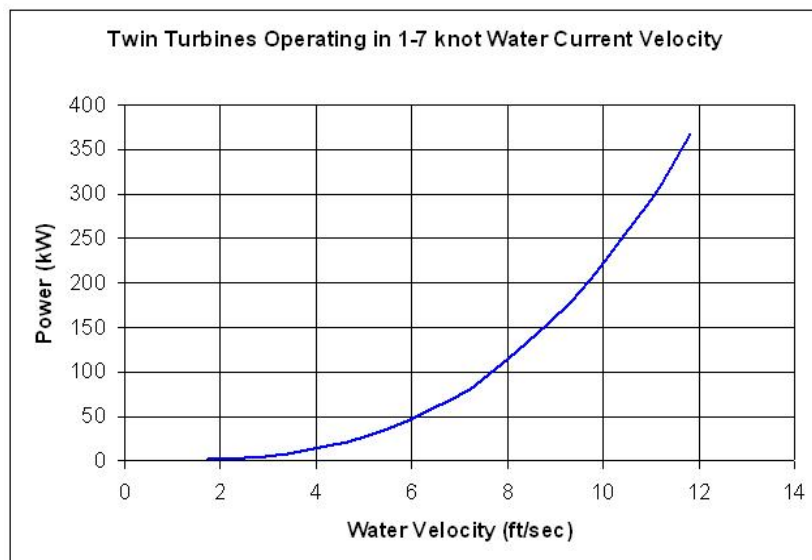
Product Specifications/Details (Standard Unit)

- **Performance Specifications:**

Category	Minimum	Maximum	Units
Velocity range	6.8	11.8	ft/sec
Hydraulic head range	-	-	ft
Power output range	69.1	370.5	kW
Waterway depth	12	-	ft
Waterway width	30	-	ft

- **Efficiency:** Turbine: 65.8% Total System: 57.1%

- **Operating Curve/Envelope:**



Design Capacity Tested:	90 kW
Test Date:	June 12, 2000
Test Location:	DeQew Hydropower Plant, St.Catharines, Ontario

Product Specifications/Details (Standard Unit) continued

- **Deployment Locations:** DeQew Hydroelectric Power Facility, St Catharines, Ontario
- **Operating History:**
 - Demonstrated “Water to Wire” of the UEK® System at the DeQew Hydroelectric power Facility, St Catharines, Ontario, to Ontario Power Generation, May 2000
 - 36 day duration of the test/demonstration took place in the discharge flume of the Power Plant
 - demonstration was 95% successful according to the principal research engineer, Mr. David Young
- **System Dimensions (feet):** 16 (L) × 20 (W) × 10 (D)

Company Contact Information

Company Name	UEK Corporation
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Company Profile

Years in Business	20-30 years
Number of Employees	less than 5 employees
Annual Equipment Sales	\$10,000 - \$100,000

Affiliations/Alliances/Credentials/References/Publications

- Acquire Ltd, Alaska Power & Telephone, University of Alaska, University of Manitoba, Manitoba Hydro, Kraft Fluid Systems Inc., RSW Inc., Ontario Power Generation, NRG, MTS, Natsource
- DOE, GRE, PCG
- US Navy
- See web page “ links” for more detail of publications